

REMARKS

Upon entry of the present amendment, claims 1, 9, 18, 20 and 21 will have been amended. Moreover, Applicants submit that the above-noted amendments to the independent claims in the present application were not made in view of the prior art cited against the claims and therefore should give rise to no prosecution history estoppel.

In the outstanding Official Action, the Examiner rejected claims 1, 3-18, 20 and 21 under 35 U.S.C. § 102(e) as being anticipated by OZAWA (U.S. Patent No. 5,826,226). Claims 2 and 9 were rejected under 35 U.S.C. § 103 as unpatentable over OZAWA in view of LAFLAMME et al. (On Reducing Computational Complexity of Codebook Search...).

Applicants respectfully traverse each of the above-noted rejections and submit that they are inappropriate with respect to the claims in the present application both prior to the herein contained amendments and certainly in view of the herein contained amendment.

Taking claim 1 as an example, the present invention relates to an excitation vector generator. The excitation vector generator according to the present invention includes a system that provides an input vector having at least one pulse, each pulse of the at least one pulse having a predetermined position and a predetermined polarity. The excitation vector generator of the present invention also includes a storage system that stores at least one fixed wave form and a convolution system that enables modification of the input vector with the at least one fixed waveform to transform a waveform of the input vector. The convoluting

system outputs the transformed input vector as an excitation vector to improve the speech quality when a random code vector is decoded with the input vector. It is respectfully submitted that the references cited in the present application do not teach, disclose nor render obvious the combination of features recited in claim 1 and also in the other independent claims of the present application.

In the outstanding Official Action, the Examiner asserted that the convolution is shown in OZAWA. While convolution is mentioned in the OZAWA disclosure, the purpose and function of the convolution is drastically different than that in the present application. In particular, the claims of the present invention are directed to generating the excitation vector while on the other hand, OZAWA is related to utilizing the excitation vector in speech synthesis. In particular, Applicants claim 1 recites the fixed waveform which is used as the input to the convolution calculation. Further, the output of the present invention is "an excitation vector".

In direct contrast, the fixed waveform of OZAWA is not the input to the convolution calculation. Further, the output of OZAWA is synthesized speech, not an excitation vector.

A convolution calculation can be utilized between an excitation vector and an impulse response of the synthesis filter to generate synthesized speech. The equations (9) and (11) of OZAWA involve such a convolution calculation which results in an output of synthesized speech which can be most clearly seen in equation (9) where the term before the asterisk

defines the excitation vector and the term after the asterisk relates to the impulse response. Of course, the asterisk itself signifies the convolution calculation. Thus, OZAWA does not generate an excitation vector by a convolution but utilizes an excitation vector in a convolution.

To emphasize the contrast between OZAWA and the present invention as recited in, e.g., claim 1, Applicants note that while the excitation vector is one of the inputs to the convolution calculation of equation 9 of OZAWA, in the present invention, the convolution calculation is performed between an input vector and a fixed waveform to generate the excitation vector. This is structurally and functionally different than the disclosure of OZAWA. Accordingly, it is respectfully submitted that the claims in the present application are clearly patentable over OZAWA, whether considered alone or whether considered in any proper combination, whether considered under 35 U.S.C. § 102 or even under 35 U.S.C. § 103. An action to such effect is respectfully requested in due course.

Applicants further wish to make of record a telephone interview conducted between Applicants' undersigned representative and Examiner Opsasnick who is in charge of the present application. During the above-noted interview, which was conducted on September 2, 2004, Applicants undersigned representative pointed out the significant and substantial shortcomings of the OZAWA reference with respect to the claims in the present application. In particular, Applicants' representative pointed out that the Examiner's reliance upon

P20687.A06

equation thirteen (13) of OZAWA is misplaced. It was pointed out that this relationship defines the excitation signal does not include a convolution calculation. Applicants also pointed out that the signals being convoluted as recited in, for example, claim 1 are quite different than the terms of equation (13).

Applicants' representative pointed out that the pending claims of the present application are directed to generating the excitation vector while OZAWA is related to utilizing an excitation vector in speech synthesis. During the above-noted interview, the Examiner agreed that the focus of OZAWA is different than the focus of the claims of the present application.

During the interview, Applicants' representative further suggested amending the claims to recite that the excitation vector is further convoluted "with an impulse response of a synthesis filter to output synthesized speech". After reviewing the OZAWA reference in detail, the Examiner indicated that such an amendment would be acceptable to him and that it would define over the OZAWA reference.

During the above-noted interview, and in view of the agreement reached with the Examiner and in view of the fact that the status of the present application is After Final Rejection, the Examiner indicated that he would not refuse entry of the herein contained amendment unless he is able to discover new prior art containing a disclosure significantly better than the disclosure of the OZAWA reference. Moreover, the Examiner also indicated

that he would contact Applicants' undersigned representative and inform him of any such newly discovered art so that it can be reviewed and distinguished.

Applicants' undersigned representative respectfully thanks Examiner Opsasnick for his cooperation in scheduling and conducting the above-noted interview. Applicants further express their appreciation to the Examiner for his open-minded approach towards the present application and for his willingness to consider the arguments presented during the above-noted interview. The Examiner's breadth of knowledge of the field of the present invention as well as his understanding of the features of the present invention and of the references cited is also noted with appreciation. Applicants thank the Examiner for facilitating and expediting the prosecution of the present application towards eventual allowance.

With regard to the rejection of claims 2 and 9 under 35 U.S.C. § 103 as unpatentable over OZAWA in view of LAFLAMME et al., Applicants traverse the same and submit that even if LAFLAMME et al. teaches the sparse algebraic codebooks, as asserted by the Examiner, LAFLAMME et al. clearly does not supply the above-noted deficiencies and shortcomings of the OZAWA reference. Accordingly, even the combination of OZAWA and LAFLAMME et al. is inadequate and insufficient to render unpatentable any of the claims in the present application. Additionally, Applicants note that the Examiner has set forth no proper motivation for the combination of these two references.

P20687.A06

In view of the above-noted interview, Applicants have amended the independent claims in the present application substantially in the manner discussed during the above-noted interview.

Further, Applicants respectfully submit that although the status of the present application is after Final Rejection, entry of the herein contained amendment is appropriate and proper in accordance with the provisions of 37 C.F.R. § 1.116. The present amendment does not raise any new issues requiring further consideration or search and the feature has been agreed to be appropriate for entry by the Examiner during the above-noted interview.

In view of the above amendment and remarks, Applicants respectfully submit that all of the claims in the present application are clearly patentable over the references of record in the present application and respectfully request an indication to such effect in due course.

SUMMARY AND CONCLUSION

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have amended the independent claim to even more clearly define and distinguish the features of the present invention with respect to the prior art. Applicants have argued the patentability of the claims in the present application over the prior art without reference to the above-noted amendment. Applicants have discussed the distinctions between the present invention and as embodied in the claims and the disclosure of the references. Applicants have also discussed the shortcomings of the references with respect to the combination of features recited in Applicants claims. Accordingly, Applicants have provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully request an indication to such effect in due course.

Applicants have made of record a telephone interview conducted between Applicants' undersigned representative and Examiner Opsasnick and have pointed out a basis for entry of the present amendment even though the status of the present application is after Final Rejection.


Thus, Applicants request entry of the present amendment, reconsideration and withdrawal of the outstanding rejections and allowance of all the pending claims.

P20687.A06

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Kazutoshi YASUNAGA et al.


Bruce H. Bernstein
Reg. No. 29,027

September 15, 2004
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191